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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/604,392 | 07/17/2003 | Chung-Yen Chou | 10606-US-PA | 1391 |

31561 7590 11/25/2005

JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE
7 FLOOR-1, NO. 100
ROOSEVELT ROAD, SECTION 2
TAIPEI, 100
TAIWAN

EXAMINER

LUND, JEFFRIE ROBERT

| | |
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| ART UNIT | PAPER NUMBER |
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1763

DATE MAILED: 11/25/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/604,392

Applicant(s)

CHOU ET AL.

Examiner

Jeffrie R. Lund

Art Unit

1763

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11 and 17-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11 and 17-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Specification

1. The use of the trademark Teflon™ has been noted in this application, see paragraphs 0012 and 0024. It should be capitalized wherever it appears and be accompanied by the generic terminology.

Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner which might adversely affect their validity as trademarks.

2. The disclosure is objected to because of the following informalities: in the amendment filed September 21, 2005 replaces paragraph 23 with an amendment replacing Teflon™ with polytetrafluoroethylene, however, the reference to Teflon™ is found in paragraph 24. Now, the specification contains paragraph 23, which is identical to paragraph 24. Applicant needs to return paragraph 23 to its original condition and amend paragraph 24 as noted above.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 1-11 and 17-19 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitations "the first gas nozzle" and "the second gas nozzle"

Art Unit: 1763

in lines 12, 13, 15, and 16. There is insufficient antecedent basis for this limitation in the claim. It is also not clear if the first gas nozzle and second gas nozzle are the same nozzles as the plurality of first gas nozzles and plurality of second gas nozzles.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 5, 10, 11, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi et al, US Patent 6, 473,993 B1 in view of Dunham, US Patent 6,206,972 B1.

Yagi et al teaches a processing apparatus that includes: a main gas distributing conduit 44 branching out, at a gas separator (joint where main gas conduit branches), into a first distributing conduit 45 with a first control valve V1 and a second distributing conduit 46 with a second control valve V2; a top plate having a first nozzle in a central region 51 connected to the first distributing conduit 45 and a second nozzle in a peripheral region 52 connected to the second distributing conduit 46; a gas barrier between the first nozzle and second nozzle; and an upper electrode panel gas distributor 41 having a first set of holes 42 through which the gas from the first gas nozzle passes, and a second set of holes 42 through which the gas from the second gas nozzle passes. The first set and second set of holes are evenly spaced. (Entire document)

Yagi et al differs from the present invention in that Yagi et al does not teach that the top has a plurality of first gas nozzles, and a plurality of second gas nozzles.

Dunham teaches a gas distributing system that includes a top plate (upper diffusion channel assembly) 11 that includes a plurality of diffusion channels 23 each of which includes a plurality of nozzles 25 connecting the gas distributing conduits 17 to holes 33 in and upper electrode panel 15. (Entire document)

The motivation for adding the additional nozzles connecting the first and second gas distributing conduit of Yagi et al is to improve the uniformity of the distribution of the gases supplied as taught by Dunham. Furthermore, it has been held that the duplication of parts is obvious (see *In re Harza* 124 USPQ 378).

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the additional nozzles of Dunham to the top plate of Yagi et al

7. Claims 2-4 and 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi et al and Dunham as applied to claims 1, 5, 10, 11, and 17 above, and further in view of Gill, US Patent 6,314,991 B1, and Roithner et al, US Patent 6,294,026 B1.

Yagi et al and Dunham differ from the present invention in that they do not teach: a controller for controlling the control valves, the specific control type of control valve, i.e. a thermal mass flow controller having a heated coil gas flow detector, or a manual valve; or that the gas barrier is an O-ring made from an elastic, and corrosion-resistant material.

Gill teaches a thermal mass flow controller with flow detector having headed

coils. (Figure 5, column 5 line 57 through column 6 line 31)

Manual valves are well known in the art.

Roithner et al teaches a processing system that includes a controller 46 that controls a plurality of mass flow controllers 42 to maintain the proper concentration and flow of process gases, and an upper gas electrode panel gas distributor 24 that has a rubber (an elastic, and corrosion-resistant material) O-ring 32. (Entire document)

The motivation for replacing the generic control valve of Yagi et al and Dunham with either the mass flow controller of Gill or a manual valve is to provide a specific control valve as required by Yagi et al and Dunham but only generically described by Yagi et al and Dunham.

The motivation for adding the controller of Roithner et al to the apparatus of Yagi et al and Dunham is to provide a means of controlling the mass flow controllers of Yagi et al and Dunham and Gill as taught by Roithner et al.

The motivation for replacing the generic gas barrier of Yagi et al and Dunham with an O-ring as taught by Roithner et al is to provide a specific gas barrier as required by Yagi et al and Dunham but only generically described by Yagi et al and Dunham.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the control valve with a thermal mass controller as taught by Gill or with a manual valve, control the mass flow controller with a controller as taught by Roithner et al, and to replace the gas barrier of Yagi et al and Dunham with a rubber O-ring as taught by Roithner et al.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi et al,

Art Unit: 1763

Dunham, Gill, and Roithner et al as applied to claims 1-8, 10, 11, and 17 above, and further in view of Nozawa et al, US Patent 5,290,381.

Yagi et al, Dunham, Gill, and Roithner et al differ from the present invention in that they do not teach that the O-ring is made of Teflon™ (polytetrafluoroethylene).

Nozawa et al teaches an O-ring made from Teflon™ (polytetrafluoroethylene). (Column 4 lines 56-57, and column 5 lines 11-12)

The motivation for making the O-ring of Yagi et al, Dunham, Gill, and Roithner et al out of Teflon™ (polytetrafluoroethylene) is to provide an alternate and equivalent material of construction as taught by Nozawa et al. Teflon™ (polytetrafluoroethylene) and rubber are both well known in the art and commonly used materials of construction for O-rings.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the O-ring of Yagi et al, Dunham, Gill, and Roithner et al out of Teflon™ (polytetrafluoroethylene) as taught by Nozawa et al.

9. Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yagi et al and Dunham as applied to claims 1, 5, 10, 11, and 17 above, and further in view of Fujii et al, US Patent 5,532,190.

Yagi et al and Dunham differ from the present invention in that they do not teach that the gas separator includes first and second valves along the first and second gas distributing conduits with first and second control circuits to control the first and second valves, and first and second detectors.

Fujii et al teaches a gas separator that includes a main gas distributing conduit

Art Unit: 1763

20 that branches into four gas distributing conduits 21-24 each with a manual valve 13-16 or valves 29-32 controlled by a controller 33 via control circuits and mass flow meters 25-28. (Figure 3 and 6)

The motivation for adding the manual control valve or valve with a control circuit and mass flow meter of Fujii et al to the gas separator of Yagi et al and Dunham is to individually control the flow in each of the gas distributing conduits thus improving the gas distribution and uniformity of the layer deposited by the apparatus of Yagi et al and Dunham as taught by Fujii et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the manual valves or valves with control circuits and flow meter of Fujii et al to the apparatus of Yagi et al and Dunham as taught by Fujii et al.

10. Claims 1, 5, 10, 11, and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunham, US Patent 6,3206,973 B1, in view of Arami et al, US Patent 5,958,140.

Dunham teaches a gas distributing system that includes: a top plate formed by member 11 and 13, the top plate including a plurality of first gas nozzles 25 communicating with a first gas distributing conduit 17, and a plurality of second gas nozzles communicating with a second gas distributing conduit 17 and around the first nozzles; and an upper electrode panel 15 having a first set of holes 31 in communication with the first nozzles, and a second set of holes 31 in communication with the second nozzles. The first gas nozzles are positioned near the center region of the upper electrode panel, and the second gas nozzles are positioned near the

Art Unit: 1763

peripheral region of the electrode panel. The first and second sets of holes are evenly spaced on the upper electrode panel. (Entire document, specifically, figures 1-4)

Dunham differs from the present invention in that Dunham does not teach a main gas distributing conduit branching out to a first and second gas distributing conduit, a gas separator, a first flow control valve for controlling the flow of gas in the first gas distributing conduit, or a second flow control valve for controlling the flow of gas in the second gas distributing conduit.

Arami et al teaches a processing apparatus that includes: a main gas distributing conduit branching out at a flow separator (joint where main gas conduit branches) into a first distributing conduit with a first control valve 44A and a second distributing conduit with a second control valve 44B. (Figure 2)

The motivation for adding the gas supply system of Arami et al to the apparatus of Dunham is to provide the required, but not disclosed, gas supply system.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the gas supply system of Arami et al to the apparatus of Dunham.

11. Claims 2-4, 6-8, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunham and Arami et al as applied to claims 1, 5, 10, 11, and 17 above, and further in view of Gill, US Patent 6,314,991 B1, and Roithner et al, US Patent 6,294,026 B1.

Dunham and Arami et al differ from the present invention in that they do not teach: a controller for controlling the control valves, the specific control type of control

Art Unit: 1763

valve, i.e. a thermal mass flow controller having a heated coil gas flow detector, or a manual valve; or that the gas barrier is an O-ring made from an elastic, and corrosion-resistant material.

Gill teaches a thermal mass flow controller with flow detector having headed coils. (Figure 5, column 5 line 57 through column 6 line 31)

Manual valves are well known in the art.

Roithner et al teaches a processing system that includes a controller 46 that controls a plurality of mass flow controllers 42 to maintain the proper concentration and flow of process gases, and an upper gas electrode panel gas distributor 24 that has a rubber (an elastic, and corrosion-resistant material) O-ring 32. (Entire document)

The motivation for replacing the generic control valve of Dunham and Arami et al with either the mass flow controller of Gill or a manual valve is to provide a specific control valve as required by Dunham and Arami et al but only generically described by Dunham and Arami et al.

The motivation for adding the controller of Roithner et al to the apparatus of Dunham and Arami et al is to provide a means of controlling the mass flow controllers of Dunham and Arami et al and Gill as taught by Roithner et al.

The motivation for replacing the generic gas barrier of Dunham and Arami et al with an O-ring as taught by Roithner et al is to provide a specific gas barrier as required by Dunham and Arami et al but only generically described by Dunham and Arami et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the control valve with a thermal mass controller as

Art Unit: 1763

taught by Gill or with a manual valve, control the mass flow controller with a controller as taught by Roithner et al, and to replace the gas barrier of Dunham and Arami et al with a rubber O-ring as taught by Roithner et al.

12. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dunham, Arami et al, Gill, and Roithner et al as applied to claims 1-8, 10, 11, and 17-19 above, and further in view of Nozawa et al, US Patent 5,290,381.

Dunham, Arami et al, Gill, and Roithner et al differ from the present invention in that they do not teach that the O-ring is made of Teflon™ (polytetrafluoroethylene).

Nozawa et al teaches an O-ring made from Teflon™ (polytetrafluoroethylene).
(Column 4 lines 56-57, and column 5 lines 11-12)

The motivation for making the O-ring of Dunham, Arami et al, Gill, and Roithner et al out of Teflon™ (polytetrafluoroethylene) is to provide an alternate and equivalent material of construction as taught by Nozawa et al. Teflon™ (polytetrafluoroethylene) and rubber are both well known in the art and commonly used materials of construction for O-rings.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the O-ring of Dunham, Arami et al, Gill, and Roithner et al out of Teflon™ (polytetrafluoroethylene) as taught by Nozawa et al.

13. Claims 1, 2, 4, 5, 10, 11, 17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunham, US Patent 6,320,973 B1, in view of Goldman et al, US Patent 4,369,031.

Dunham teaches a gas distributing system that includes: a top plate formed by

Art Unit: 1763

member 11 and 13, the top plate including a plurality of first gas nozzles 25 communicating with a first gas distributing conduit 17, and a plurality of second gas nozzles communicating with a second gas distributing conduit 17 and around the first nozzles; and an upper electrode panel 15 having a first set of holes 31 in communication with the first nozzles, and a second set of holes 31 in communication with the second nozzles. The first gas nozzles are positioned near the center region of the upper electrode panel, and the second gas nozzles are positioned near the peripheral region of the electrode panel. The first and second sets of holes are evenly spaced on the upper electrode panel. (Entire document, specifically, figures 1-4)

Dunham differs from the present invention in that Dunham does not teach a main gas distributing conduit branching out to a first and second gas distributing conduit, a gas separator with a manual valve or a valve controlled by a control circuit with a detector, a first flow control valve for controlling the flow of gas in the first gas distributing conduit, or a second flow control valve for controlling the flow of gas in the second gas distributing conduit.

Goldman et al teaches a processing apparatus that includes: a main gas distributing conduit 51 branching out at a flow separator 40 (including the mass flow controllers 33-37 i.e. valve with control circuit and detector) into a first distributing conduit 29 and 27a-e with a manual first control valve 31 and a second distributing conduit 29 and 27a-e with a manual second control valve 31. (Figure 2)

The motivation for adding the gas supply system of Goldman et al to the apparatus of Dunham is to provide the required, but not disclosed, gas supply system.

Art Unit: 1763

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the gas supply system of Goldman et al to the apparatus of Dunham.

14. Claims 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunham and Goldman et al as applied to claims 1, 2, 4, 5, 10, 11, 17, and 19 above, and further in view of Gill, US Patent 6,314,991 B1.

Dunham and Goldman et al differ from the present invention in that they do not teach: a heated coil gas flow detector, or manual valves.

Gill teaches a thermal mass flow controller with flow detector having headed coils. (Figure 5, column 5 line 57 through column 6 line 31)

The motivation for replacing the generic mass flow controller of Dunham and Goldman et al with the mass flow controller of Gill is to provide a specific mass flow controller as required by Dunham and Goldman et al but only generically described by Dunham and Goldman et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the mass flow controller of Dunham and Goldman et al with a thermal mass controller as taught by Gill.

15. Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dunham and Goldman et al as applied to claims 1, 2, 4, 5, 10, 11, 17, and 19 above, and further in view of Roithner et al, US Patent 6,294,026 B1.

Dunham and Goldman et al differ from the present invention in that they do not teach that the gas barrier is an O-ring made from an elastic, and corrosion-resistant

Art Unit: 1763

material.

Roithner et al teaches a processing system that has an upper gas electrode panel gas distributor 24 that has a rubber (an elastic, and corrosion-resistant material) O-ring 32. (Entire document)

The motivation for replacing the generic gas barrier of Dunham and Goldman et al with an O-ring as taught by Roithner et al is to provide a specific gas barrier as required by Dunham and Goldman et al but only generically described by Dunham and Goldman et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to replace the gas barrier of Dunham and Goldman et al with a rubber O-ring as taught by Roithner et al.

16. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dunham, Goldman et al, and Roithner et al as applied to claims 1, 2, 4-8, 10, 11, 17, and 19 above, and further in view of Nozawa et al, US Patent 5,290,381.

Dunham, Goldman et al, and Roithner et al differ from the present invention in that they do not teach that the O-ring is made of Teflon™ (polytetrafluoroethylene).

Nozawa et al teaches an O-ring made from Teflon™ (polytetrafluoroethylene). (Column 4 lines 56-57, and column 5 lines 11-12)

The motivation for making the O-ring of Dunham, Goldman et al, and Roithner et al out of Teflon™ (polytetrafluoroethylene) is to provide an alternate and equivalent material of construction as taught by Nozawa et al. Teflon™ (polytetrafluoroethylene) and rubber are both well known in the art and commonly used materials of construction

Art Unit: 1763

for O-rings.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to make the O-ring of Dunham, Goldman et al, and Roithner et al out of Teflon™ (polytetrafluoroethylene) as taught by Nozawa et al.

Response to Arguments

17. Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The cited art teaches the technological background of the invention.

19. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later

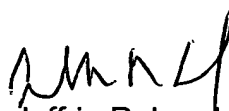
Art Unit: 1763

than SIX MONTHS from the date of this final action.

20. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL
11/21/05